

Amendments to the Specification

Please substitute the paragraph starting at page 1, line 9 and ending at page 1, line 15 with the following replacement paragraph.

B1 --~~Conventional~~ A conventional image forming apparatus of this kind includes a copying machine, a printer and so on. Referring first to Figure 17, a conventional image forming apparatus and an image forming process will be prescribed. Figure 17 is a schematic illustration of an image formation process portion of a conventional image forming apparatus.--

Please substitute the paragraph starting at page 2, line 6 and ending at page 2, line 11 with the following replacement paragraph.

B2 --The transferring means ~~and~~ may be a contact type transferring means represented by a transfer roller in place of the transfer charger 52. The contact transferring means is advantageous in that amount of production of electric discharge product, such as ozone, is smaller as compared with the charger.--

Please substitute the paragraph starting at page 4, line 15 and ending at page 4, line 21 with the following replacement paragraph.

B3 --The tendency of the toner deposition is strongest at the leading end portion ~~53S~~ 53s of the upper guide 53a, which portions is closest to the surface of the photosensitive drum 50. As a result, there arises a liability that contamination toner is deposited onto the recording material 51, which leads to deterioration of the image quality.--

134 Please substitute the paragraph starting at page 5, line 24 and ending at page 5, line 25 with the following replacement paragraph.

--However, such a ~~prior-art~~ prior art structure involves the following problems.--

Please substitute the paragraph starting at page 7, line 2 and ending at page 7, line 20 with the following replacement paragraph.

135 --In addition, when the developing device is operated with a low print ratio under an extremely low humidity condition such as 23°C, 5% in durability test, the deterioration of the toner is promoted even to such an extent that amount of the reversely charged toner increases, and the reversely charged toner deposited on the free end of the upper guide from the photosensitive drum, during the post-rotation; the contamination occurs at the leading and trailing edges of the recording material at each of the image forming operations. The problem is not only with the transfer guide, but a member disposed to close to the drum is contaminated due to the ~~air-flow~~ airflow caused by rotation of the drum. The increase of the amount of the reversely charged toner results in increased amount of the untransferred toner. The toner on a toner receptor sheet disposed upstream of the cleaning blade may fall therefrom onto the recording sheet, thus again contaminate the recording material.--

Please substitute the paragraphs starting at page 12, line 17 and ending at page 13, line 1 with the following replacement paragraphs.

136 --On the other hand, the sheet 6 (recording material) accommodated in a cassette 5 is fed out in synchronism with the toner image formation, and is fed by a feeding roller 7

136 cont  
and a pair of feeding rollers 8. The upper and lower surfaces of the sheet 6 is guided by guiding members which constitute a pair and which are opposed to each other (an ~~a~~ upper guiding member 9 which is a first guiding member and a lower guiding member 10 which is a second guiding member). Thus, the sheet 6 reaches an image transfer station where a transfer charger 11 (transferring means) is opposed ~~supposed~~ to the photosensitive drum

1.--

Please substitute the paragraph starting at page 15, line 13 and ending at page 15, line 24 with the following replacement paragraph.

137  
--The photosensitive drum used is OPC photosensitive member having a diameter of 30 mm, and the surface thereof is uniformly charged by a primary charger to -720V. The developing bias voltage is an AC biased DC voltage in which the DC component  $V_{dc}$  is -560V, and the AC component is 800V, in the peak to peak  $V_{pp}$  and has a frequency of 1.8kHz. The developing sleeve  $S$  used is a sleeve ~~20~~ which is rotated at a peripheral speed which is 1.8 times ~~1.8 times~~ the peripheral speed of the drum. In this example, potential of the exposed portion (toner deposition portion) provided by the image exposure is -200.--

Please substitute the paragraph starting at page 20, line 24 and ending at page 20, line 27 with the following replacement paragraph.

138  
--Figure 4 illustrates a behavior of the toner adjacent the effective developing zone when the developing bias stops with the waveform shown in Figure ~~6(B)~~ 6(B).--

109 Please substitute the paragraph starting at page 22, line 25 and ending at page 23, line 1 with the following replacement paragraph.

--In the C region, charged potential of the drum and the developing bias  $V_{dc}$  are that same levels and attenuate to OV, and the toner is hardly ~~transfer~~ transferred onto the photosensitive drum.--

141 Please substitute the paragraph starting at page 23, line 21 and ending at page 24, line 2 with the following replacement paragraph.

--However, even with such a waveform, the toner is oscillating immediately after the application of the bias waveform, and therefore, there is no urging force provided by the photosensitive drum or the developing sleeve. For this reason, the low charging toner floating in the developing zone is deposited on the transfer guide and so on due to the ~~air flow~~ airflow or simple (non-electrical) scattering. This may be a factor of contaminating the sheet.--

141 Please substitute the paragraph starting at page 25, line 14 and ending at page 25, line 22 with the following replacement paragraph.

--In addition, the following has been found. This phenomenon is particularly remarkable with respect to the toner particles sufficiently charged to the regular polarity, and such toner shifts to the outside of the effective developing zone, since only such toner particles are responsive to the alternating electric field. Because of this, only the reversely charged toner and the toner having a low level regular charge remain in the effective developing zone.--

Please substitute the paragraphs starting at page 26, line 19 and ending at page 27, line 5 with the following replacement paragraph.

--The investigation has been made as to the behavior of the toner with the use of the developing bias waveform shown in ~~Figure 6, (A) and (B)~~ Figures 6(A) and 6(B).

812  
Figure 10 illustrates a behavior toner adjacent the effective developing zone when the developing bias stops with the waveform shown in Figure ~~6, (A)~~ 6(A).

As shown in ~~(B) in Figure 6~~ Figure 6(B), when the input signal ends at the Low, the developing bias voltage level attenuates from  $V_{ppmax}$  (-160V) to the developing bias  $V_{dc}$  (A region), and the voltage is temporarily maintained at  $V_{dc}$  (B region), and then further attenuates to OV since the drum charging operation and  $V_{dc}$  stops (C region).

Please substitute the paragraphs starting at page 28, line 18 and ending at page 29, line 1 with the following replacement paragraphs.

--Figure 11 illustrates a behavior of the toner adjacent the effective developing zone when the developing bias stops with the waveform shown in Figure ~~6, (B)~~ 6(B).

813  
As shown in Figure 6(B) ~~(B) of this Figure~~, when the input signal ends at the High, the developing bias voltage level attenuates from  $V_{ppmin}$  (-960V) to the developing bias  $V_{dc}$  (A region), and the voltage is temporarily maintained at  $V_{dc}$  (B region), and then further attenuates to OV since the drum charging operation and  $V_{dc}$  stops (C region).--

Please substitute the paragraph starting at page 30, line 13 and ending at page 30, line 19 with the following replacement paragraph.

614  
--The left side deals with the data described in conjunction with Figure 10, and the righthand side deals with the data described in conjunction with Figure 11. As compared with Figure 5 of the prior art example, the contamination is reduced to one half with the waveform (A) of Figure 6 6(A), and the contamination is quite reduced with the waveform (B) of Figure 6 6(B).--

Please substitute the paragraphs starting at page 33, line 4 and ending at page 33, line 23 with the following replacement paragraphs.

615  
--On the other hand, by stopping the application of developing bias ~~office~~ voltage ~~application of other stopped of~~ or the developing sleeve rotation, the effects are different. In the case that is stopped at -160V, the effects are recognized to a certain degree, but not complete against the contamination. With the increase of the number of operations, the amount of the reversely charged with toner increased, the sheet contamination occurs.

On the contrary in the case of stop at ~~a~~ -960V, the sheet contamination or the transfer guide contamination does not occur even in the long term operation which necessarily results in increase of the reversely charged toner. The effects are very remarkable. A substantially complete interrelation with the amount of the toner on the photosensitive drum. Figures 13 shows a sequence of operations of the drum driving, the drum charging, the developing sleeve driving and bias voltage application to the developing sleeve.--

Please substitute the paragraph starting at page 35, line 4 and ending at page 35, line 8 with the following replacement paragraph.

146  
--In the first embodiment, the stop timing of the developing bias, particularly the AC bias is the feature. In this embodiment, the stop timings of the Dcmin. and ~~And~~ the Acmin. of ~~Of~~ the developing bias voltage is the feature.--

Please substitute the paragraph starting at page 36, line 5 and ending at page 36, line 11 with the following replacement paragraph.

147  
--By doing so, the Dcmin. and ~~And~~ the Acmin. of ~~Of~~ the developing bias can be simultaneously stopped, so that transfer guide contamination or the like by the small amount of reversely charged toner produced during the period in which only the Vdc is applied, and the leading and trailing edge contamination of the sheet can be avoided.--

Please substitute the paragraph starting at page 36, line 16 and ending at page 36, line 21 with the following replacement paragraph.

148  
--As shown in Figure 14 ~~this figure~~ when the input signal ends at the High, the developing bias voltage level attenuates from Vppmin (-960V) to the developing bias Vdc (A region), and then, without maintaining the voltage at Vdc, the voltage attenuates to OV since the drum charging operation and Vdc stops (C region).--

Please substitute the paragraph starting at page 37, line 15 and ending at page 37, line 20 with the following replacement paragraph.

149  
--The amount of the development of the reversely charged toner transferred onto the

photosensitive drum upon stopping the voltage waveform ~~stop~~, was unmeasurably small  
both in the case of a new a developing apparatus and the developing apparatus operated for  
100,000 sheet durability test.--

B19  
cut

Please substitute the paragraph starting at page 38, line 18 and ending at page 38,  
line 21 with the following replacement paragraph.

B20

--Figure 15 shows a sequence of ~~sick ratio~~ operations for the drum driving, the  
drum charging, the developing sleeve driving and the developing sleeve bias application.--

Please substitute the paragraph starting at page 39, line 21 and ending at page 39,  
line 23 with the following replacement paragraph.

B21

--As shown in ~~this~~ Figure 16, this embodiment uses a contact transfer type, that is,  
the transferring means is a transfer roller 17.--

Please substitute the paragraph starting at page 41, line 23 and ending at page 42,  
line 1 with the following replacement paragraph.

B22

--As will be understood from this table, when the application of the developing bias  
is stopped after ~~the stop of~~ the developing sleeve is stopped, the number of sheets having  
the backside contamination is smaller than with the ~~case in~~ case in which the developing  
bias voltage application is stopped during the rotation of the developing sleeve.--



Please substitute the paragraph starting at page 42, line 22 and ending at page 42,  
line 26 with the following replacement paragraph.

1323 --Similarly, by simultaneous ~~stop of~~ stopping of the application of the AC bias  
component and the DC bias component of the developing bias voltage while the  
developing electric field is formed, the advantageous effects are further enhanced.--